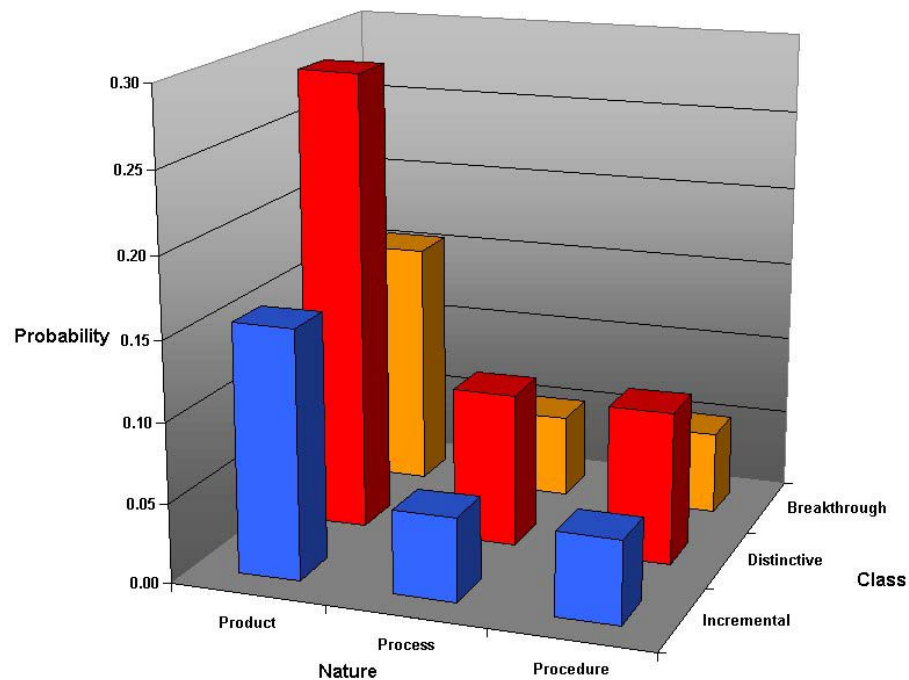


INSTRUCTOR'S GUIDE

BUILDING AN INNOVATIVE ENTERPRISE



Presented by



**The U.S. Russia Center for
Entrepreneurship**

PREPARING FOR THE PRESENTATION

ADVANCE PREPARATION:

Review the results of the *Pre-Program Questionnaire*. Be prepared to use some of the issues, examples and indicators from the questionnaire to demonstrate and reinforce points during the presentation.

USING THE INSTRUCTOR'S NOTES:

Each slide is accompanied by speaker's notes, including explanations about what is discussed on the slide, related issues and activities, as well as a recommended time to allocate for the section.

The following format is used:

Slide #:	Slide Title
	Discussion
	Background

There will be breaks in the slideshow in order to let the participants work through the experiential exercises, and to review and discuss the case study. A break is also scheduled mid-way through the presentation.

COURSE MATERIALS:

The following course materials are provided:

- ◆ PowerPoint Presentation
- ◆ Three Exercises
- ◆ Case Study
- ◆ Article

This presentation is based in part on the book *Innovate!*, McGraw-Hill, 1994. If at all possible, it is suggested that the instructors familiarize themselves with this book. There is also a lot of material on innovation, including many chapters from the book, available free at www.theinnovationroadmap.com.

CONDUCTING THE PRESENTATION

Introduction to this guide:

Building an Innovative Enterprise is a 4-Hour workshop. The agenda is sub-divided into 5 segments:

• Part 1: Introduction	30 minutes	3 slides
• Part 2: Innovation	70 minutes	19 slides and one exercise
• Part 3: Enterprise Innovation	20 minutes	4 slides
• Break	30 minutes	
• Case Study	35 minutes	
• Part 4: Organization	40 minutes	10 slides and two exercises
• Part 5: Summary	15 minutes	4 slides
Total	240 minutes	

This Instructor's Guide represents a step by step approach to managing the session.

PART 1: INTRODUCTION (SLIDES 1-2) - 30 MINUTES

In this section, the instructor introduces him/herself and takes the time to have each participant introduce themselves. Each participant should state their name, their company affiliation and what they want to learn is this seminar. After the introductions, the instructor should present an outline for the remainder of the workshop.

SLIDE 1: TITLE SLIDE

This slide should be up and running before the start of the seminar and should stay on during the instructor's welcoming comments.

Welcome the participants to the workshop

Introduce yourself by emphasizing your relevant background and experiences. What makes you qualified to present this seminar? Why should your audience listen to what you have to say?

Use the following to introduce the workshop:

"Innovation is the lifeblood of an enterprise. It courses through a vital organization spawning new markets, enlarging existing markets, increasing market share or swelling profits. Innovation is the way of transforming the resources of an enterprise through the creativity of people into new resources and wealth. And, in today's environment, that requires the creation of an innovation commons. Innovation can also reduce costs and increase profitability.

However, I have to be honest with you, innovation is risky. Most innovations fail.

On the other hand, to stay competitive you must innovate. To reduce the risks of innovation, and to reap its great benefits, it must delight your customers. Innovation that delights anticipates customer needs. It flows from a strategy that balances the opportunities and threats in a market, the desires of stakeholders, and the capability and capacity of the enterprise for innovation.

Values, derived from the market, drive the development of the enterprise's resources, focus the organizational culture, and align the enterprise's five innovation enablers, inspiring people to be effective and efficient.

Innovation is dynamic. The need for innovation is a moving target that must be continuously forecast as far into the future as it will take the enterprise to respond. Your foresight has to be greater than your ability to innovate.

Building an innovative enterprise can be your most significant accomplishment for it can live beyond your tenure or even your life.

As incredibly important as innovation is, most people don't know where to begin, or don't think they're doing it well."

Paul Schumann

This workshop will begin your journey to building an innovative enterprise.

SLIDE 2: TOPICS

Participant Introductions:

Give each participant 30 seconds to introduce themselves. Ask each to state their name, the name of the company, what the company does, why this workshop was of interest, and what they expect to learn. Write each of these objectives on a blackboard, white board or flip chart located in the front of the room. After all participants have finished talking, review the list of objectives and point out where their issues will be addressed in the presentation.

When possible, work their specific requests for learning into the presentation. The goal should be to cover as many of the requests as possible. If you see there are requests that you will not be able to cover, make sure that you give them a lead to how they might be able to augment their learning.

Introduction of workshop format

This presentation is constructed of five sections:

- ◆ Introduction
- ◆ Innovation
- ◆ Enterprise Innovation
- ◆ Organization

◆ Summary

It is scheduled for 4 hours with a break midway.

There are three exercises included:

- 1 Innovation Map,
- 2 Innovation Resources,
- 3 Innovation Enablers,

and a case study, Alexander and Evgeny Kabanov – Building MIR, a Retail Electronics Empire, with questions related to innovation, is included

Innovation

We will be talking about the definition of innovation, the results of innovating, why innovations fail, the goals for an innovative enterprise, what an innovative enterprise is, how innovation creates wealth and the types of innovation.

Enterprise Innovation

We will be talking about a system for an innovative enterprise and reviewing what a market is, who stakeholders are and what a strategy is.

Organization

In this section we will be discussing the elements of an organization that are important to innovation.

Summary

In summary, we will discuss how to build an innovative enterprise and the principles of an innovative enterprise.

PART 2: INNOVATION (SLIDES 3 - 20) - 70 minutes

SLIDE 3: INNOVATION DEFINITION

Read this definition slowly several times while explaining the following words:

Innovation is the way of transforming the resources of an enterprise through the creativity of people into new resources and wealth.

Innovation - the word sometimes refers to the result of innovating. In this workshop, the word will refer to the method of innovating.

Way - we will focus on how an enterprise innovates.

Resources - what the enterprise has to work with - its work, material, relational, intellectual and intangible building blocks

Transforming - how innovation changes the existing resources of the enterprise into new, more and better resources to use for further innovation

People - the people referred to here are people within the enterprise or the people within the framework of the enterprise that constitute an innovation commons.

Creativity - original, productive or generative thought. (The fostering of the creativity of individuals or groups is a separate endeavor outside the scope of this workshop.)

Wealth - wealth is used in its broadest sense, the common weal. Innovation within an enterprise not only makes money for the enterprise, its employees and owners, it raises the level of economic prosperity in the community within which it operates

Background

"As the births of living creatures at first are ill shaped, so are all innovations, which are the births of time. Surely every medicine is an innovation and he that will not apply new remedies must expect new evils, for time is the greatest innovator."

Francis Bacon

"Creativity is thinking up new things. Innovation is doing new things."

Theodore Levitt

"Innovation is the process of turning ideas into manufacturable and marketable form."

Watts Humphrey

"Innovation grows out of membership and a sure sense of responsibility people feel for their work and the organizations that employ them."

Abraham Zaleznick

"The innovation point is the pivotal moment when talented and motivated people seek the opportunity to act on their ideas and dreams."

W. Arthur Porter

"Innovation is the process of implementing new ideas, of turning creative concepts into realities. For our purposes, there is a more meaningful concept, that of "effective innovation," which can benefit business. Effective innovation is the timely and efficient implementation of new ideas that result in significantly increased revenues and profits."

George Freedman

"Innovation is the specific tool of entrepreneurs, the means by which they exploit change as an opportunity for a different business or a different service. It is capable of being presented as a

discipline, capable of being learned, capable of being practiced. Entrepreneurs need to search purposefully for the sources of innovation, the changes and their symptoms that indicate opportunities for successful innovation. And they need to know and to apply the principles of successful innovation."

Peter Drucker

"To most observers, innovation is a solitary process that requires creativity and genius, perhaps even greatness. It can't, in their view, be managed or predicted, just hoped for and, perhaps, facilitated. But for me innovation was and still is more than that. It was a battle in the marketplace between innovators or attackers trying to make money by changing the order of things, and defenders protecting their cash flow."

Richard Foster

"The industrial landscape is already littered with remains of once successful companies that could not adapt their strategic vision to altered conditions of competition."

Abernathy, Clark & Kantrow

"To meet the demands of the fast changing competitive scene, we must simply learn to love change as much as we have hated it in the past."

Tom Peters

"Business has only two basic functions: Marketing and innovation. Marketing and innovation produce results. All the rest are costs."

Peter Drucker

"Systematic Innovation consists in the purposeful and organized search for changes, and in the systematic analysis of the opportunities such changes might offer for economic or social innovation."

Peter Drucker

"Innovation endows resources with a new capacity to create wealth or creates a resource. Innovation is the procedure of implementing new ideas, of turning creative concepts into realities. Innovation can cause change or exploit change. Systematic innovation which exploits change is generally the most effective."

Donna Prestwood & Paul Schumann

SLIDE 4: RESULTS OF INNOVATING

This slide has one animation in it. After reviewing all the positive aspects, click the left mouse button, and the starburst will appear with the word "Failure".

Create new markets

What do Pez dispensers - those little plastic heads that dole out candy - have to do with one of the most successful Internet business innovations. Pierre Omidyar's fiancée collected them, had a

passion for them. He wondered how he could help his girlfriend feed her Pez passion. His idea was to create an online, person to person trading community. His idea blossomed into eBay, the web's premier auction site where more than 2 million members place millions of bids a day on an astonishing variety of items. eBay is credited with transforming everything from classified ads in small town newspapers to the practices of the world's elite auction salons.

eBay, a classic example of network economies, created a new market through a set of innovations. People are not attracted to a market with a small number of items. As the market grows in the number of items and the number of participants, it becomes more attractive. Now, with over 42 million registered users and over 79 million items for sale in 8,000 categories, eBay has exploited the dynamics of the network effect fully.

The first person to build the network has a significant competitive advantage as it becomes more and more difficult for competitors to enter the market.

Matsushita created the market for home bread making machines by creating the technology for automatic home bread machines. They did this by gaining the tacit knowledge of bread making from chefs and automating the process.

Expand existing markets

Amazon.com expanded the market for books by innovating in the way books were sold and capitalizing on the customer's buying and search patterns. Amazon.com is the leading retailer online. They marketed to the buyers' purchase and search patterns, and they made their customers a participant in the business by encouraging them to write reviews of books they had purchased.

Increase market share

Matsushita expanded its market share from just over 50% for home rice cookers in Japan to almost 60% while increasing their rice cooker sales by 50%. This was accomplished through innovation in the way the cooker heated the rice that improved the quality of the rice.

Open existing markets

Hyundai entered the highly competitive and well established U.S. automobile market with innovations in warranty, simple & classic design, quality and low cost.

AMD and IBM entered the microprocessor market dominated by Intel through innovations based on the way the devices worked internally demonstrating competitive advantage on specific applications.

Increase profits

Profits can be increased by innovations that create new value for the customer. Innovations in pharmaceuticals create real value to the consumer, and quite likely, the physician. They can command an elevated price because of the perceived value to the consumer.

Reduce costs

Reduction of cost and improvement of quality through incremental innovation is the most common application of innovation, and the least likely to create wealth. It is easily copied and thus, while it offers temporary increase in profitability, the cost reductions usually end up getting passed through to the customer.

Attract & retain the best

Wal-Mart attracts and retains the best suppliers because of the huge market they have developed. Every vendor wants their products in Wal-Mart and will work to stay a supplier. Wal-Mart built their market through innovations in their distribution system. And, they are now making the next step to improving that system by demanding RFI tags on all pallets of goods.

IBM, when it was at its most innovative era, attracted and retained some the brightest and creative talent to their organization. Their retention rate was extraordinary with turnover rates of a fraction of a percent.

Failure (Click the left mouse button to bring in this word)

Most innovations fail. We don't know the statistics of how many innovations succeed or fail. We have very little information about innovation failure rates because we don't measure enterprises on this factor. Our financial accounting practices, by which we measure the success or failure of a business, blind us to innovation as the real lifeblood of the enterprise.

I searched for "innovation failure rate" in Google, Yahoo and Kartoo, and found only three or four references in total.

If at first you don't succeed, you're average. It is the classic innovator's dilemma -- most innovations fail, but companies that don't innovate die.

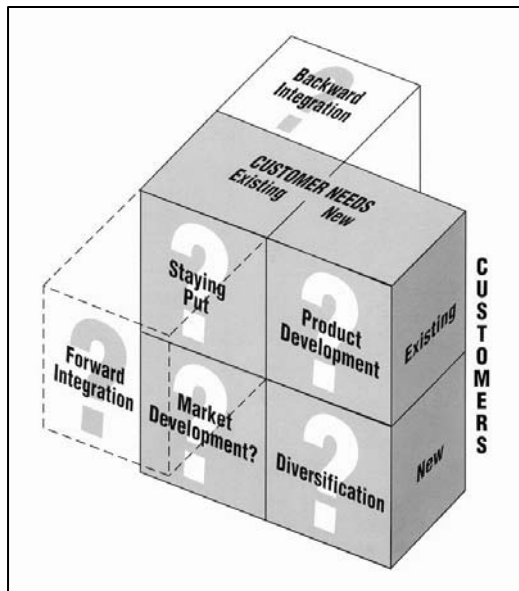
Innovations fail because we are better at imagining the innovation inside our heads than implementing it.

"Remember, the human body contains nearly 100 million sensory receptors, allowing us to see, hear, taste, touch and smell physical reality. But the brain contains more than 100,000 billion synapses. In other words, you and I are approximately 100,000 times better equipped to experience a world that does not exist than a world that does." - Roy Williams

The successful leader of innovation must be able to imagine the reality of a successful innovation before it can become a reality. It must be imagined before it can happen. Not only does the leader have to imagine the entire system of innovation working; the people in the enterprise also have to be able to see it in their heads if they are going to do it.

The innovation methodology presented in this program provides the way to do just that.

Background



The boundaries of opportunity for an enterprise are described in this drawing. To continue to meet the existing needs of existing customers with an existing definition of the enterprise is a recipe for decline and failure. There are five possible strategies that could lead to success (The first three keep the definition of the enterprise the same.):

- Product development - meeting new needs for existing customers
- Market development - meeting the existing needs of new customers
- Diversification - meeting new needs for new customers.
- Change the definition of the enterprise by forward integration, i.e. do more of what your customers

do.

- Change the definition of the enterprise by backward integration, i.e. either doing more or less of what your suppliers and vendors do.

All of these require innovation.

SLIDE 5: WHY DO INNOVATIONS FAIL?

Ask this question of the audience. Write all of their ideas down on a flip chart, white board or blackboard. If you don't get any, suggest the following, or augment their list with these.

The most common reasons for innovation failure are:

- Not anticipating customer needs.
- Failure to understand and utilize technology appropriately.
- Lack of understanding of competitor capability and strategy.
- Misjudging implementation difficulty.
- Ineffective implementation.
- Timing - too early or too late in the market.
- Being stakeholder driven instead of market driven.
- Not having the resources for implementation.
- Being driven by personal agendas.
- Unsupportive organizational culture, or culture driven strategies.
- Attempting to cause change rather than exploiting change.

"There is nothing more difficult to bring to hand, more perilous to conduct or more uncertain in its success, than to take the lead in the introduction of a new order of things. Because the innovator has for enemies all those who have done well under the old conditions and lukewarm defenders in those who may do well under the new." - Machiavelli

When the topic has been thoroughly discussed, make a show of either tearing the paper from the flip chart or erasing the board, and stating, "Let's put all of these reasons for failure out of our minds. The rest of this program is about how to assure success."

SLIDE 6 - GOALS FOR AN INNOVATIVE ENTERPRISE

Increase success rate of innovation

No matter what the success rate is, 1 out of a 100, 1 out of a 1,000, or 1 out of a 1,000,000, the goal is to increase that rate. The difference between an extraordinary enterprise, one that is average or one that is failing is in large part due to its innovation success rate. A very small improvement can catapult an enterprise from failing to extraordinary.

Create wealth

Never forget that innovation is about creating wealth. Innovation is the way of transforming the resources of the enterprise through the creativity of people into new resources and wealth. Theft, exploitation and greed, among others, may make money for individuals, but they do not create wealth. Innovation creates wealth.

Build a regenerative innovative enterprise

The goal is to use a system approach to build a regenerative innovative enterprise. If you can get the success rate of innovation high enough, the system will become regenerative.

SLIDE 7: REGENERATIVE INNOVATIVE ENTERPRISE

The innovation methodology described in this program employs a system view of the enterprise and it is systematic, i.e. there is a procedure that can be followed, taught and replicated.

At the core of any innovation methodology has to be the creativity of the people within the organization, its suppliers and vendors, customers, partners, stakeholders and in some cases, even its competitors.

The enterprise operates on its resources through its projects within the context of its culture in pursuit of innovation. That pursuit generates enhancements to its existing resources, creates new resources and creates wealth.

One of the paradoxes of life is that we learn more from our failures than we do from our successes. This is related to the fact that we operate within paradigms that govern the way we perceive and act. When something succeeds, our paradigm is validated, and little learning takes

place. But, when we fail, we have a choice - either reject the failure as an accident or use it as a tool to examine our paradigm. If we choose the latter, we learn.

This is especially true within an organization. The resources are forever altered by the experience of pursuing innovation. Even if the innovation fails, the capital may be reduced, however the people's skills and knowledge have grown, and maybe new tools, equipment, facilities and strategic partners have been developed.

An innovative enterprise creates a "virtuous cycle". A virtuous cycle is a condition in which a favorable circumstance or result gives rise to another that subsequently supports the first - in other words, a positive feedback system. In economics there is an assumption that a complex system will tend to a state of equilibrium. In non-equilibrium condition two cycles can be present - a virtuous cycle or a vicious cycle. A vicious cycle leads to decline and failure. A virtuous cycle leads to growth and wealth. The difference in an enterprise between a vicious and virtuous cycle is determined by the initial conditions, the innovation success rate and the percentage of resources reinvested in the creation of more innovation.

SLIDE 8: INNOVATION CREATES WEALTH

Economic and technology historians tell us that the major technological innovations of an economy go through three stages of development, each lasting about 25 years.

During the first 25 years of an major innovation, the innovation is not productive, but since there is not a lot of money invested in the innovation within the economy, it neither enhances or retards the productivity of the economy.

During the second 25 years, a lot of money within the economy is invested in the innovation. There is widespread proliferation, but the applications, social technologies and infrastructure are not yet available. As a result the innovation is counter productive within the economy.

During the third 25 years, the innovation becomes hyper productive within the economy. All the pieces are in place to reap the benefits of the innovation.

This is based on studies of the development and diffusion of steam, telegraph and electric technologies. And, it seems to be true also for information technologies.

The electronic computer was born in 1946 with the ENIAC. This event initiated Stage 1. The personal computer was introduced in 1975, 29 years after the first computer, starting the rapid proliferation of computers in Phase 2. The Internet was created in 1969, it but was the introduction of the web with the capability of text, images and sound in 1991 - 1993, that signaled the transition to Phase 3, 47 years after the first electronic computer.

The Internet provided the infrastructure just like the power distribution system did for electricity, the roads did for automobiles, and the railroad track did for steam power.

And, it is true that in the U.S. productivity gains have been exceptional over the last few years. If this model is correct, the U.S. will reap the benefit of investing in all the electronic innovations of the information age for the next 15 or 16 years. Innovation does indeed create wealth.

"Technological progress has been one of the most potent forces in history in that it has provided society with what economists call a free lunch, that is, an increase in output that is not commensurate with the increase in and cost necessary to bring it about" - Joel Mokyr (economic historian)

"...based on the available evidence, technological change seems to have been a very important factor, perhaps the most important factor, responsible for our economic growth" - Mansfield

Technological progress = technological change = innovation.

There is even evidence that the social rates of return from innovation are far greater than the private rates of return. What this evidence shows is that it is quite difficult for a successful innovator to receive a reward for his innovation that reflects its value to society.

Background (Computer)*

Back when the authors were apprentice futurists, computers were the size of convenience stores and filled with hundreds of vacuum tubes. Each time we wanted these electro-mechanical behemoths to perform a new task, we wrote the programming code from scratch, and stored it on punched cards or paper tape. Small wonder that, apart from specialized applications – e.g. crunching Census data and tax returns, or calculating the trajectories of space shots and inter-continental missiles, etc. – early applications of computers often did little to increase economic efficiency, and many turned out to be counter-productive. Since the 1950's, of course, computers have evolved through four increasingly powerful data manipulation technologies – vacuum tubes, transistors, integrated circuit boards and silicon chips. Computers now fit in our pockets, and we buy software off the shelf. Wal-Mart is selling generic PC's for \$199.00, and Linux is giving software away for free.

Since ENIAC was first switched on in 1946, computers have clearly experienced exponential improvements in size, power and cost. (Engineers commonly observe that, had the automobile experienced the same cost-performance improvements as the computer, Rolls Royces today would cost a dollar-a-dozen, and get 100,000 miles per gallon of gas.) But neither the automobile nor the computer would have had a significant impact on the economy or the society as a freestanding technology. In order for the automobile to realize its potential, there had to be paved roads to drive on, and there had to be some place to buy gasoline/petrol other than local pharmacist/chemist. The automobile required a supporting infrastructure, including neighborhood streets, inter-city highways and a petroleum industry.

Similarly, the steam locomotive had little practical utility without its primary infrastructure: thousands of miles of railways connecting major cities. And for the first quarter century after

Edison patented the light bulb (1879), homes and offices wishing to replace their gas illumination with electric lights had to generate their own power, because there was no infrastructure to produce and distribute electricity. It wasn't until the early 20th Century that electric utilities began to build generating plants, and to string millions of miles of transmission cables and distribution lines across the countryside and down every city street and country lane.

The Internet is to the computer what the electricity distribution grid is to electric power, what the railways are to the train, and what the streets and highways are to our fleets of cars and trucks. The Internet is the infrastructure – or “info-structure” – for the information economy.

From the outset of the computer age, cyberneticists assumed there would be some sort of network for sharing information among computers. But, most early computers were engaged in processing classified government data, or proprietary corporate data, and their owners had no desire to share information with anybody. With some exceptions, most computers that weren't employed by big business or big government in the 1960's worked for “big science,” largely on the campuses of big universities. Unlike business and government, academics saw great value in data sharing, and the first general purpose “computer conferencing systems” were hosted by universities in the early 1970's under grants from the U.S. National Science Foundation (NSF). One such project, ALOHANET (sponsored by the University of Hawaii) was so successful that it outgrew its NSF funding base, and was subsequently underwritten by the U.S. Department of Defense as ARPANET, which was finally privatized as the INTERNET in 1981.

As an info-structure, the 1980's Internet was a modest, black & white, alphanumeric medium. Because so few people were on the Net, the U.S. Postal Service introduced E.com “Computer Originated Mail” (1982-85), that permitted Internet users to send e-mail which the U.S.P.S. printed out, put in an envelope, and delivered to off-line addressees as regular first class mail (Hafner 2001). Conversely, because the medium was so new, people who were on-line never remembered to check their “in-boxes.” To deal with this problem, MCI-mail, the first commercial e-mail provider, had an MCI employee telephone e-mail addressees to tell them to check their electronic mail boxes for an incoming message (1984).

It took another ten years for the Net to add color, graphics and sound, and to become the World Wide Web – a comprehensive general-purpose info-structure for the information economy. With color, graphics and sound, the Web was superficially similar enough to radio and television that the Internet's enormous potential as a mass-market medium suddenly became readily apparent to millions of people, including entrepreneurs, venture capitalists and investors. The dot.com bubble that arose from this set of circumstances was an entirely predictable event, characteristic of the introductory periods of previous innovative mass-market technologies. Meanwhile, at the same time that hundreds of ill-fated e-ventures were being launched, hundreds of large existing enterprises were applying the Net's more mundane capacities for automated data transmission and assimilation to their routine, repetitive business processes, giving rise to sustained increases in total factor productivity throughout growing sectors of the workplace. The general adoption of high-speed Internet as the principal medium for internal communication and external

transactions by both private and public enterprise is widely expected to extend the recent rise in U.S. productivity improvement rates well into the future.

Background (U.S.)*

Economic historians tell us that new technologies don't become reliable, affordable and generally productive until they have "matured" for a half-century or so (David 1990). And in fact, in the mid-1990s, as the computer reached its 50th "birthday," the U.S. economy's annual productivity improvement rates more than doubled, and have remained at that higher rate ever since, after having stagnated for the previous 25 years. In 1987, the Nobel Laureate economist, Robert Solow, famously observed, "We can see computers everywhere in today's economy, except in the productivity statistics." But, by March 2000, Prof. Solow was able to report that "We can now see computers in the productivity statistics" (Uchitelle 2000).

The fact that our productivity-improvement rates did not decline during the Recession of 2001 - 2002 – an unprecedented event – has helped convince the macro-economists at the merchant banking houses and the U.S. Federal Reserve that our enhanced performance reflects fundamental structural changes in the nation's workplace, and that it is permanent.

Technology historians are equally sanguine about the future, since previous transformational technologies – the steam engine, the telegraph, electric power, etc. – have typically produced long-term surges in productivity once they have achieved marketplace maturity. Moreover, rising productivity in a free-market economy ultimately translates into higher wages. On the assumption that the U.S. will be able to average a 2% per year productivity improvement rate (instead of the 1.4% per year we averaged from 1973 to 1995), the Labor Department has projected that median household income will rise from \$43,000 p.a. in 2001 to \$70,000 p.a. by 2020 (Bodipo-Memba 1999).

This is due in large part because of five major technologies:

- The internet infrastructure
- Distributed computing: an information utility
- The wireless web
- Open source software
- Groupware

Background (Technological Innovations)

- Telephone 1876 (126 years old)
- TV 1911 (91 years old)
- Invention of transistors 1942 (60 years old)
- First electronic computer 1943 (59 years old)
- Fiber optics 1955 (47 years)
- Satellite communication 1962 (40 years old)

Internet History	
• 1958: Advanced Research Projects Agency (ARPA)	• 1985: First registered domain name
• 1968: Packet switching network	• 1988: Internet Relay Chat (IRC)
• 1969: First four nodes on ARPAnet	• 1990: First commercial ISP
• 1971: E-mail	• 1990: Hypertext protocol
• 1978: Usenet established	• 1991: World Wide Web
• 1983: Name server	• 1992: Search tool
• 1984: Domain Name System (DNS)	• 1993: Browser
	• 1994: Banner ads
	• 2000: DotCom's
6/24/05	© Global Vantage, Inc., 2002 26

- Internet 1969 (33 years old)
- Personal computer 1975 (27 years old)
- Cellular phones 1979 (23 years old)

* Taken from Snyder and Edwards, The Strategic Context of Education in America: Part 2, The Innovation Road Map Magazine, www.theinnovationroadmap.com

SLIDE 9: TYPES OF INNOVATION (CLASS)

One of the problems that the management of innovation has faced over the years is a vocabulary of innovation with consistent definitions. To manage innovation effectively, the leader has to understand the different types of innovation. There are two different areas of innovation - class and nature. Each area has three different dimensions of innovation that when combined in a matrix produces nine different types of innovation.

The class of innovation:

Incremental. An innovation which provides modest improvements in performance and/or profitability. Allows goods or services to be produced faster, cheaper, better, more reliably, etc.

Distinctive. An innovation, which significantly improves performance and/or profitability, but is not based on an approach fundamentally different from those presently being used. Typically serves as a foundation for a number of incremental innovations.

Breakthrough. An innovation based on a fundamentally different approach than those presently being used. Allows one to perform task that could not be performed at present, or to perform a present task in a markedly improved manner. Typically serves as a foundation for a number of distinctive innovations.

As an example consider the integrated circuit. The development of the first integrated circuit was a breakthrough innovation. It enabled a whole new set of innovations that can be visualized as a family tree. After the introduction of the first integrated circuit, there were many other ICs, undeniably ICs, but distinctively different for the first IC. These are distinctive innovations. On each of the distinctive innovations there have been many improvements. These are incremental innovations.

SLIDE 10: THE S-CURVE AND INNOVATION CLASS

The life of a system of innovations typically follows an s-curve. It begins with a breakthrough. Initial progress is slow as the breakthrough is tinkered with producing a set of incremental innovations. The end of this process is the demonstration of the potential of the innovation. This series of events is followed by a long history of growth mostly punctuated with distinctive innovations with incremental innovations. When the maximum potential of the innovation is

being approached, progress slows down and growth is achieved through many incremental innovations.

Another breakthrough occurs sometime during the life of the first series of innovations. It is invariably a step backward in productivity or usefulness. This is one of the reasons why breakthrough innovations are not readily accepted. The innovator may see the long term potential, but the mass of people do not. Experimenters and early adopters do get involved with the breakthrough for they are able to at least partially see the potential. As more and more people get involved, its usefulness begins to improve and eventually surpasses the first series of innovations.

Progress is made out of a series of overlapping s-curves that may appear continuous at the macro level.

It is important to note that it is usually the company with the right distinctive innovation at the right time that makes the most money from a system of innovations. For example, Xerox pioneered the personal computer, but it was Apple and IBM that made the money, in the early days, followed by Dell and many others later.

SLIDE 11: TYPES OF INNOVATION (NATURE)

The nature of innovation:

- **Product.** The product or service provided to customers (external or internal). Examples include improvements in machinery, consumer goods, software, automobiles, etc. These innovations typically involve new and attractive features. A product innovation involves the way things interact with other things. Sometimes called technological innovation.

Example: a home bread maker

- **Process.** The way a product is produced or a service is provided. Examples include improvements in distribution systems, software programming systems, etc. These innovations reduce lifetime cost of the product/service and improve their quality. A process innovation involves the way people interact with things.

Example: UPS innovations in distribution process. Companies like Dell integrated UPS's innovation into the way they do business providing an enhanced service.

- **Procedure.** The way in which products/processes are integrated into the operations of the organization. Examples include improvements in advertising programs, repair and maintenance service, and reaction times. These innovations contribute to the customer's comfort in that the product/service is well supported before and after purchase. A procedure innovation involves the way people interact with other people.

Example: Dell's system of ordering computers via the Internet, which when combined with other procedure and process innovations, make Dell the leading PC company.

SLIDE 12: TYPES OF INNOVATION

When The Class and Nature of innovation are combined into a matrix, they describe nine types of innovation. This is called an innovation map.

Examples (all from auto industry):

- Breakthrough product - Cugnot's steam powered tricycle
- Distinctive product - Ford's Model T, and all the subsequent models
- Incremental product - the addition of power steering
- Breakthrough process - Ford's assembly line
- Distinctive process - robotics
- Incremental process - quality control
- Breakthrough procedure - Ford's pricing of cars so that people who worked in his factories could afford to buy them (the invention of the consumer market)
- Distinctive procedure - GM's choice of many different models and styles
- Incremental procedure - different financing methods

There are several observations to make about this matrix - the innovation map:

- This is a complete set. Every innovation related to enterprise can be classified as one of these nine types of innovation.
- Innovation is not just for R&D. there's a role for everyone in the enterprise in one or more of these nine different types of innovation.
- There's more to innovation than just technological or product innovation. There's a lot of money to be made in process and procedure innovation. In today's environment (for the next 15 to 16 years) most of the real money will be made in these areas.
- What customers want is not one of these nine different types of innovation, but a pattern of innovations.
- Competitors attempt to differentiate themselves by the pattern of innovation they project to the market.

SLIDE 13 - INNOVATION HISTORY OF THE U.S. AUTO INDUSTRY

This is an animation of the innovation history of the U.S. automobile industry as seen through the innovation map at the industry level. It compresses 180 years of history into 17 seconds. The clip is repeated three times.

To start the movie, left mouse click on the light blue screen area.

Tell the audience that you will deconstruct the movie later. Show the movie and then make the point that at the industry level, innovation is very much like a dance as the industry reacts to the capabilities of the technologies, needs of customers and the actions of the competitors within the industry all driven to the music of the driving forces for change - demographics, sociopolitical, economic and technology.

SLIDE 14: AUTOMOTIVE HISTORY

There are six different stages of the development of the automotive industry covering 180 years:

- Experimenters & Hobbyists (1820s - 1900s)
- Search & Learn (1900s - 1908)
- A Car for Everyone (1908 - 1927)
- Living Room on Wheels (1920s - 1950s)
- Synthesizing Market Demands (1950s - 1980s)
- Life Style on Wheels (1980s - 2000s)

The next series of six slides deconstruct the innovation history of the U.S. automotive industry. They should be gone through very quickly, making just one or two points per slide. This program is not about innovation strategy and these are presented as examples to help the participants grasp the innovation map concept and its power. The background is provided for you to understand the various stages and be able to speak authoritatively about this example. The major point to be made about innovation strategy is that one is only valid for a period of time. And, that each innovation strategy has weaknesses that will be exploited by competitors.

SLIDE 15: EXPERIMENTERS AND HOBBYISTS

Experimenters and Hobbyists: The Early Days

- Breakthrough product - steam powered tricycle - Cugnot (1880)
- Distinctive product - other steam power cars along with electric powered and internal combustion engine powered, three and four wheeled vehicles

Background

The search for a self-propelled wheeled vehicle began with Cugnot's steam-powered tricycle. Other technological competitors followed, with internal combustion engines and electric motors providing energy sources. During this period the fastest car was, surprisingly, an electric vehicle.

From the 1880s to the 1920s there was a rapid proliferation of different versions of the automobile. Hundreds of companies were created, each with its unique approach. Carriage shops in many cases acted as the incubator. To own a car during this period required daring and at least a modicum of mechanical ability. Purchasers were the early adopters, experimenters, and hobbyists, who weren't concerned about repairing the frequent breakdowns, and certainly not

totally dependent on the auto as a means of transportation or business. There were few roads, and those were of poor quality.

The breakthrough innovation of Cugnot resulted in many distinctive and incremental product innovations. Competitors were searching for the right technologies and the right configurations to meet market needs. There was not a lot of focus on process or procedure innovations.

SLIDE 16: SEARCH AND LEARN

Search and Learn: The Development of the Ford Model T

- Distinctive product - versions of internal combustion engines, different drive chains, different steering mechanisms. Models A to T.
- Incremental product - variations on the distinctive product innovations

Background

When Henry Ford began his search for the perfect car, there was still a great deal of technological uncertainty. No one knew for sure which engine type would win. Certainly no one knew which configuration would best fit the market. Ford went through a process of searching, trying different configurations of internal combustion engine autos, to find the car for the "common man." The "Model T" designation was not capricious but the result of trials A through S, which culminated in 1908 in the Model T. The major innovation strategy during this period was a continuation of the distinctive product innovations of the past, along with a movement toward incremental product innovations.

SLIDE 17: A CAR FOR EVERYONE

A Car for Everyone: Exploiting the Model T

- Product innovations - Four-cylinder engine (cost efficiency), Works completely enclosed (more reliable), Durable (stood up to bumps), Reliable (didn't strip gears), \$825 price (competitors' \$2000)
- Process innovations - Reinforced-concrete factory with windows/ skylights, Interchangeability of parts, Moving assembly line, Task/part segmentation
- Procedure innovations - High pay (double competitors), Nonstop eight-hour shift rotations
- The complete focus on system rationalization caused Ford to miss the shifts that were occurring in the U.S. public. As a result, he allowed a door open for GM. In order to respond to GM, Ford had to shutdown his River Rouge plant to retool to meet customer needs. That left Ford in second place in the U.S. market for a number of years.

Background

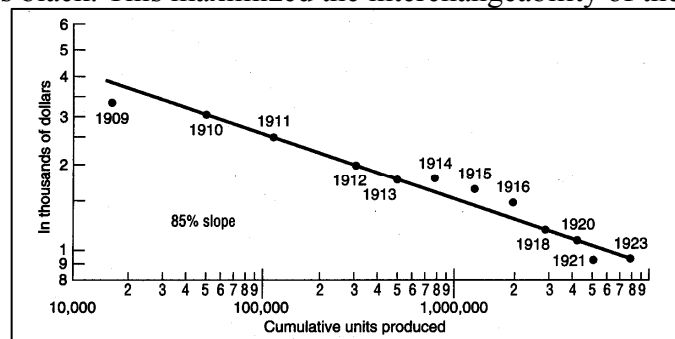
Ford correctly recognized that the driving forces for change in the United States were creating a need for cheap, reliable, independent methods of transportation. He correctly understood that if he could rationalize the manufacturing system and drive the cost down, he could capture a large

share of the market. To improve the reliability and decrease the cost, Ford instituted a series of product, process, and procedure innovations:

Product Innovations	Process Innovations	Procedure Innovations
Four-cylinder engine (cost efficiency)	Reinforced-concrete factory with windows/ skylights	High pay (double competitors)
Works completely enclosed (more reliable)	Interchangeability of parts	Nonstop eight-hour shift rotations
Durable (stood up to bumps)	Moving assembly line	
Reliable (didn't strip gears)	Task/part segmentation	
\$825 price (competitors' \$2000)		

The results of all of these innovations plus an incredible number of subsequent incremental innovations produced impressive cost reductions.

An example that has been reported shows the depth of the rationalization. Ford requested that gears be shipped in wooden boxes, and he specified the dimensions of the pieces of wood in the boxes. This wood was just the right size to be used as is for the floorboards of the cars. Ford had all the cars painted black, and all the parts black. This maximized the interchangeability of the parts, simplifying inventory. The joke was that you could get any color Model T you wanted as long as it was black. The results were impressive. Ford created the auto industry and dominated it for years. Some people even credit him with the creation of the consumer society we live in. He made the cars cheap enough to be purchased and paid the workers well enough that they could become consumers.



Ford took the results of what he had learned about the product design and configuration and focused on breakthrough, distinctive, and incremental process and procedure innovations. Spectacularly successful as this strategy was, Ford made the mistake of believing in it too much. On his deathbed, he is reported to have said that the only thing wrong with the Model T was that it stopped selling. As Abernathy and Wayne (1982) have pointed out:

"The strategy of cost minimization single mindedly followed with the Model T was a spectacular success. But the changes that accompanied it carried the seeds of trouble that affected the organization's ability to vary its product, alter its cost structure, and continue to innovate."

SLIDE 18: FROM RURAL UTILITY VEHICLE TO LIVING ROOM ON WHEELS

From Rural Utility Vehicle to Living Room on Wheels: GM's Response

- Distinctive product - segmentation of the market - a car for everyone, ease of use features
- Incremental product - a variety of styles and features, i.e. chrome bumpers, more comfortable seats, etc.
- Incremental process - improvements to the assembly line and the use of vendors

Background

Environmental forces were at work in this market to create change. People's social values were changing. They wanted more choice, more comfort, and more luxury. Women were becoming drivers, and the open carriages and hand-crank starter were definite drawbacks. People began to have more disposable income and attached status to the type of automobile they owned. Porter (1985) explains that:

"The classic example of the risks of cost leadership is the Ford Motor Company of the 1920s. Ford had achieved unchallenged cost leadership through limitation of models and varieties, aggressive backward integration, highly automated facilities, and aggressive pursuit of lower costs through learning. Learning was facilitated by the lack of model changes. Yet as incomes rose and many buyers had already purchased a car and were considering their second, the market began to place more of a premium on styling, model changes, comfort, and closed rather than open cars. Customers were willing to pay a price premium to get such features. General Motors stood ready to capitalize on this development with a full line of models. Ford faced enormous costs of strategic readjustment given the rigidities created by heavy investments in cost minimization of an obsolete model."

GM took advantage of Ford's preoccupation with an obsolete strategy and developed cars for everyone. They offered different price ranges, flexibility of choice, optional features, and a host of technological innovations, not the least of which was Kettering's electric starter and battery system. Alfred Sloan, the founder of GM, was quoted by Abernathy and Wayne as saying,

"Mr. Ford ...had frozen his policy in the Model T,...preeminently an open-car design. With its light chassis, it was unsuited to the heavier closed body, and so in less than two years [by 1923], the closed body made the already obsolescing design of the Model T noncompetitive as an engineering design

The old [GM] strategic plan of 1921 was vindicated to a "T," so to speak, but in a surprising way as to the particulars. The old master had failed to master change His precious volume, which was the foundation of his position, was fast disappearing. He could not continue losing sales and maintain his profits. And so, for engineering and marketing reasons, the Model T fell In May 1927 he shut down his great River Rouge plant completely and kept it shut down for nearly a year to retool, leaving the field to Chevrolet unopposed and opening it up for Mr. Chrysler's

Plymouth. Mr. Ford regained sales leadership again in 1929, 1930, and 1935, but, speaking in terms of generalities, he had lost the lead to General Motors."

While GM certainly produced many process and procedure innovations, the principal innovation strategy was a return to a distinctive and incremental product innovation thrust. As a result of correctly reading the driving forces for change and interpreting their impact on consumers, GM dominated the auto market for a number of years. However, as Abernathy, Clark, and Kantrow (1983) point out, even when imports began to make inroads,

"[t]he comfortable maturity into which American automobile makers drifted during the 1950s and 1960s kept all such potentially disquieting questions at bay. Like their counterparts in other manufacturing industries, executives in Detroit felt they had found the key to unlock forever the boundaries of a secure domestic market. Their confidence was soon to cost them dearly."

SLIDE 19: SYNTHESIZING MARKET DEMANDS

Synthesizing Market Demands: Development of Toyota

- A pattern of innovation used to meet the changing needs of customers - the desire for a second car, lower cost, smaller, higher quality
- Detroit unable to change their system view of a car, and thus not able to change their innovation strategy. This allowed foreign competitors to enter the market (Volkswagen and Toyota)

Background

In the 1950s and 1960s there were new driving forces for change. The United States was being suburbanized. People were fleeing from the inner cities and were in the process of creating the present-day megalopolises of Los Angeles, Houston, and Atlanta, to name just a few. The car became essential to get around cities that were created by and for the car. But even more than that, the people left in the suburbs needed a second car. People had enough disposable income for two cars but would have liked to have a smaller, cheaper car for the second car.

There was a niche entry at the low end, Volkswagen, and the German manufacturer found a very successful niche market. Detroit tried to respond by building small cars, but found that it could not produce small cars cheaply enough to compete. The only way that Detroit could take cost out was to reduce quality, and that produced some disastrous results and eventual return to the big-car formula. To quote Abernathy, Clark, and Kantrow:

"In retrospect, then, we can see that Detroit's early flirtation with a new calculus of automobile design and production was at base a continuation of past practice, a somewhat half-hearted attempt to view the competitive dynamics of the industry in different terms. Just how strong a grip the logic of large car production had on the industry can be seen in the compacts' steady

increase in size and weight during the years they were in production. Indeed, each year seemed to bring a few more inches and a few more pounds until, by the late 1960s, even a once trim car like the Falcon had added a foot in length and 500 pounds in weight. Detroit, in effect, first tried to build small cars by making little big cars."

Detroit's insistence on following its old business theory caused a backlash. There were attacks on the quality and safety of the small cars, and a general discrediting of the large U.S. automakers. Kotler et al. (1985) describe the situation:

"The U.S. automobile companies ignored these warning signals and continued to build larger and more expensive regular automobiles. This total ignorance of consumer demand led to significant negative car buyer attitudes-a pro-foreign, anti-Detroit syndrome. As Donald Peterson, vice president of car planning and research for Ford's Product Development Group, observed: 'People believed that we make too many changes for change's sake - i.e., non-functional changes. There's a credibility gap. People don't believe our advertising. It has done more harm than good.'"

Toyota was watching. They saw the success of Volkswagen, the driving forces for change, the changing needs of auto buyers, and the power of innovation to redefine the small auto with quality. As Kotler et al. state,

"As strategic planners of the highest order, the Japanese aim their marketing efforts, not at where the competition is situated, but at where they think the competitive battlefield will be in the future."

Toyota did extensive market research in the United States using Volkswagen as the prototype. They used U.S. market research firms and U.S. data, and beat us at our own game. Their first entry, the Toyopet, was not a success, but they stuck with their new business theory and the result was a restructuring of the market.

They focused on distinctive product, process, and procedure innovations. Then their thrust was incremental innovations across the board. Eventually, Toyota became the market leader.

SLIDE 20: LIFE STYLE ON WHEELS

- Tremendous segmentation of the market as consumers wanted a car to reflect a life style, even if they didn't live that life style Image)
- Product innovations - a proliferation of models and features, competitors, fragmentation of the industry
- Procedure innovations - new ways of purchasing a car, new ways of financing a purchase, lease options, improved warranties

EXERCISE 1 - INNOVATION MAP - 15 MINUTES

Hand out Exercise 1. This is an exercise to use the Innovation Map as a brainstorm tool to think about potential innovations their businesses. Explain the process and tell them that the objectives of this exercise are to:

- Become familiar with the Innovation Map
- Learn one application of the Innovation Map as a tool
- Give the participants time to think about their business and potential innovations
- Get them to talk about their observations

Walk around the room and be available to answer questions. (15 minutes)

PART 3: ENTERPRISE INNOVATION (Slides 21 - 24) - 20 minutes

The purpose of this section is to establish the bigger picture of enterprise innovation. The instructor need only briefly describe all of the elements in order to show that the main focus of this program is a method to create a more innovative organization that has the correct innovation focus.

SLIDE 21: SYSTEM FOR AN INNOVATIVE ENTERPRISE

An innovative enterprise consists of four parts:

- Opportunities and threats in a market
- Desires of stakeholders
- Innovation strategy
- Organizational capabilities

After a brief review of the market, stakeholders and strategy, the rest of this presentation will focus on the organization's capability for innovation and how to improve that capability and focus it.

SLIDE 22: MARKET

A market is composed of three major elements: customers, competition, and industry or market specific technology. Customer needs are anticipated and filled through the use of technology by the enterprise and its competitors. A market must have, in addition to customers, competition, and technology, a time frame, geographical reference, scale, and scope. In a market, money, goods, services, and/or information are exchanged.

Once an initial definition of the market is created, the next step involves taking a "world view" of the driving forces for change and how specific key forces are affecting the current structure and future development of the market. Driving forces for change can be placed in four categories:

- Demographic i.e., number, characteristics and distribution of people

- Sociopolitical i.e., women's movement, political systems
- Economic i.e., a recession
- Technological i.e. global technologies that affect many industries and business (not necessarily used in meeting specific customer needs for the enterprise), the Internet

Each category is in itself a collection of trends, events, developments, and realities. Each represents a strategic context within which we all live and operate. However, it is the interaction between these categories and their interaction with the market that creates the great force that culminates in change. And, this change creates needs.

The needs of three types of customers are important - present, potential and possible. Your present customers have needs that you must continue to meet. To expand your market share, it is necessary to meet the needs of your potential customers. These are customers that are probably already buying from your competitors. To expand the market, or possibly create a new market, you have to meet the needs of possible customers. That's all the rest. They don't buy from you or your competitors.

There are three types of competitors to consider - direct, indirect and structural. The direct competitors are those that are providing the same product or service that you do in the same manner. Indirect competitors are those that provide the same function but do it in a different way. And, structural competitors are those that try to do away with the need for the function you provide.

There are three types of technology to consider - embedded, supportive and enabling. The embedded technologies are those that become part of your product. Supportive technologies are those that support the operation of the enterprise. And, the enabling technologies are those that enable the enterprise to do what it needs to do.

Background

Markets have evolved over time. In its earliest use, market referred to a place, usually a juncture between roads where people were likely to meet. In time, markets became more specific places for exchange within towns and villages. However, in today's environment markets are no longer always tied to a concrete locale; instead the term has come more to represent a set of conditions. These conditions generally are descriptions for each of the elements mentioned above. Defining a market is not a linear process.

The methodology described in this program assumes that the enterprise has at least a vague sense of direction. It assumes that there is an ongoing purpose and that the enterprise is attempting to make decisions about whether to:

- Stay where they are
- Develop new markets
- Develop new products or services
- Diversify

- Integrate their operations either forward or backward in the supplier-customer value chain

The process of understanding a market and discovering the opportunities and threats in a market is integrative. After developing an initial understanding of a market and a strategy, which helps the enterprise take advantage of that opportunity, it is useful to assess the consequences of that strategy on the market:

- How will it affect customer needs?
- How will competition respond?
- How will it affect the development of technology?
- After the enterprise has developed its projects, resources, and culture to produce output, which will have consequences to a market, another assessment of the market's opportunities and threats must be conducted.

SLIDE 23: STAKEHOLDERS

Stakeholders are individuals or institutions that have a stake in the outcome of the enterprise. They can consist of:

- Stockholders/Owners
- Creditors
- Employees
- Vendors/Suppliers
- Customers
- Society

They have desires that must be balanced with the opportunities and threats in the market and the organization's capability to create an innovation strategy that will produce a regenerative innovative enterprise.

SLIDE 24: STRATEGY

A strategy is composed of a vision, mission, goals, strategies and plans. The following are the definitions:

- Vision - a description of a state of being for the organization. It is not a lofty goal but what the enterprise should be. (Why?)
- Mission - the frame around what the enterprise intends to do.(Scope?)
- Goals - measurable objectives (What?, When?)
- Strategies - what the enterprise is going to achieve its goals (How?)

- Plans - steps to be taken to achieve the goals (Who?, What?, When?)

Use some examples familiar to you that may also be familiar to the participants.

Background

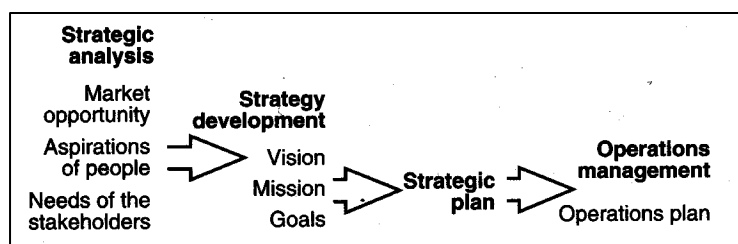
An organization's strategy should flow from the analysis of the market opportunity and threats, aspirations of its people, and the needs of its stakeholders. Strategy development encompasses the creation of a vision, selection of a mission, setting of goals, and development of strategies and plan.

A strategy is the organization's interpretation of the market opportunity. It is its way to capitalize on the market opportunity based on its vision, mission, goals and capabilities.

A strategy is organization dependent because no two organizations have the same vision, mission, goals, and capabilities. Therefore, even if two organizations uncover the same opportunity, they are likely to perceive it differently. A strategy is a way to minimize or avoid threats. It is a method to effectively utilize the organization, to satisfy the organization's stakeholders, and a way to provide competitive differentiation.

To develop a strategic plan, the organization must:

- Understand the market in which it operates
- Understand the needs and aspirations of people in the organization
- Synthesize the needs of market, stakeholders, and people into a vision
- Establish a shared vision
- Select a mission, set goals, and develop the plan together with the organization
- Create strategies and plan to capitalize on the opportunity, avoid or minimize the threats, and meet business needs as stated in the vision, mission, and goals



Strategic Thinking

The vision must be created first, followed by the mission, goals, and strategies and plan.

An innovation strategy is only good for a finite amount of time. One of the worst mistakes an organization can make is to assume that because an innovation strategy was successful it will

• Vision	→	Purpose
• Mission	→	Areas of business operation
• Goals	→	Objectives to be reached
• Strategic plan	→	Way to accomplish objectives

always be successful. The environment shifts, customers' needs change, competition gets smart, technologies improve, and the organization itself evolves.

Strategy Development

Creating a Vision

Creating a vision, which can take advantage of the opportunity, meet the business objectives of the organization, and effectively energize the people who work in the organization, is one of the most important and creative things that a manager can do. It can turn a manager into a leader.

Many organizational vision statements have no spirit. They are weak and platitudinous. This type of formulation must be avoided. The vision will not only not accomplish what you want it to but will be detrimental to the morale of the organization.

A vision:

- Provides a bridge from the present to a future state
- Is a target that beckons
- Depicts a future state that does not exist and never existed before
- Confers status
- Bridges between the market, the business, and people
- Energizes the organization

To create a vision, consider the following:

- Decide what will excite people.
- Focus the vision on strategic advantages.
- Think about how your organization adds value to others.
- Make the vision simple enough to be used to make decisions.
- Develop a strategy to gain a broad base of support for the vision.
- State it in the present tense.

Use both informal and formal channels of communication. Make sure that everyone shares in the vision including employees, customers, stakeholders, and suppliers. In the process of gaining support for the vision, the vision may need to be modified. Experience of many leaders has shown that it is wise to alter the vision to gain the maximum amount of support. It is important that the vision be communicated to and shared by the organization and its stakeholders. The following are some characteristics of a good vision:

- Be short and succinct
- Be clear and unambiguous
- Have meaning to everyone in the organization
- Lead to distinctiveness
- Be innovation-rich

- Provide reason for extraordinary effort
- Be sustainable through mission, product, technology, and organizational changes
- Be identifiable with the greater good

A good vision will:

- Help people feel significant
- Establish the value of learning and competence
- Unite people and give them a collective identity
- Make work exciting, not by pushing, but through identification with common goals
- Establish integrity, dedication, openness, creativity, and courage in the organization
- Encourage people to think longer term
- Allow people to understand the whole
- Encourage people to exert influence beyond their bounds
- Unite multiple, sometimes conflicting, constituencies
- Foster thinking in terms of renewal

The vision must link the market opportunity and the business objectives to the various needs of the people in the organization. What do they want to accomplish with their lives? Why are they working for this organization? These are questions that must be answered if a good vision is to be established.

Visioning does not lend itself to linear processes. It is basically intuitive, holistic, iterative, and synthetic. It is advisable to work with a group of people who represent a cross section of the organization in a focus group or nominal group setting. The vision statement, once created, must be "socialized" with ever-larger groups of people, modifying it along the way, until the entire organization and its stakeholders have adopted it.

In summary, to establish a vision, the organization must know how to learn what its members believe is important, credible, and relevant. Then it must identify the directions the members find exciting, develop a positive vision to embody this, and communicate it to the people in language they understand.

Selecting a Mission

A mission defines the area of business chosen to help make the vision a reality. It puts boundaries around the organization to channel and focus its efforts. A well-selected mission makes the organization more effective in its operations. It defines the area of the opportunity that will be addressed. As a result, it selects the competition the organization will face. Since it narrows the organization's focus, it can lead to the development of sustainable competitive advantage.

Establishing Goals

Goals are measurable objectives that the organization must reach within an identified time frame. Often it is advisable to establish several different time frames for goals, for example, periods of five and ten years. Goals are steps on the organization's way to actualizing the vision within the chosen area of business. Goals must be attainable but outside the current reach of the organization. The organization must need to be innovative to reach the goals. If the goals are too easily attained, they will not serve to motivate the organization. If the goals are impossible to reach, frustration will develop, and morale will drop.

It is imperative to monitor progress on the path to realization of the goals. This means that the degree of attainment of the goals must be measurable; therefore, a measurement system must be established every time a goal is established.

Goals are indicators of what's worth achieving in and by the organization. They become the "glue" for the organizational structure. Goals can be segmented, and each piece related to the whole. This creates a hierarchy of purpose, and it gives people in the organization a way to identify with the vision. A vision can sometimes be too lofty; people can buy into the vision but not see how they can contribute. Hierarchical goals provide individuals with a way to help the organization and themselves realize the vision.

BREAK - 30 MINUTES

CASE STUDY - 35 MINUTES

Hand out the case history. Ask the participants to read "Alexander and Evgeny Kabanov – Building MIR, a Retail Electronics Empire" and answer the following questions:

- Identify and characterize all of the innovations mentioned in the case history.
- Give each innovation a name and write those names into the innovation map.
- Indicate what resources and enablers they used to create the innovations.
- Indicate what resources and enablers could be used to improve innovation in this example.
- Indicate any additional innovations on the innovation map that could improve the enterprise's situation.

Use the worksheets attached to case history.

After the participants have had a chance to complete the work, go through the questions with them as a group soliciting answers from the group.

PART 4: ORGANIZATION (SLIDES 25 -34) - 40 MINUTES

There are two slides and an exercise in this section. The purpose is to acquaint participants with way of thinking about innovation resources that can help them look at their organization differently.

SLIDE 25: ORGANIZATION

Organizations are composed of four major elements:

- **Projects:** The projects of an organization are the identified and organized ways that the resources of the organization are applied in order for the organization to reach its goals, and exploit the market opportunities and avoid or minimize the threats. Projects are the way in which the strategy is implemented. Projects can be focused on products, processes, or procedures. They can have the purpose of improving technologies, methods, or materials.
- **Resources:** Resources are the "means" of an organization; the resources of an organization are capital, people, facilities/land and tools/equipment, strategic relationships, knowledge and natural resources. The resources of an organization are applied through projects to produce the results required by its strategy and goals.
- **Culture:** The culture of an organization determines its character; it encourages the development of specific types of resources and the implementation of certain projects. Like social cultures, organizational cultures are known by their artifacts, the things they produce, and the behavior of individuals within the culture. The output of an organizational culture, its products or services, reflects the culture itself.
- **Enablers:** Enablers are programs that support, encourage and facilitate innovation in an organization. There are five types - education, communication, incentives, infrastructure and management system.

SLIDE 26: RESOURCES

The resources of an enterprise are its people, capital, tools & equipment, facilities & land, knowledge, strategic partners and natural resources. When assessing the innovation resources of your enterprise, you should consider the following:

- **People** - Who are the people in your enterprise? (Consider not only the people in your organization, but also people in your suppliers, vendors, and customers.) Do they have the creativity, personality, information and skills to be innovative?
- **Capital** - What are the sources of money to fund innovative efforts? Is it patient, long term money, or short term? High or low risk? How can you get money for innovation?
- **Tools/Equipment** - What tools and equipment do you have to support innovation? Are they state-of-the-art?
- **Facilities/Land** - What facilities and land do you have that supports innovation?
- **Knowledge** - What explicit and tacit knowledge exist within your enterprise? Is the creation of knowledge useful for innovation encouraged? Do you have systems that ensure that knowledge created in the enterprise gets used throughout the enterprise?
- **Strategic partners** - Who are your strategic partners? How do these relationships foster innovation?
- **Natural resources** - Do you have any natural resources that support innovation?

SLIDE 27: PEOPLE

There are many ways to characterize people. The four parameters of creativity, personality, information and skills have been found to be useful with respect to innovation.

Creativity - All people are creative. It is part of our human nature to be creative. However, people are creative in different ways and to different degrees. Creativity is the engine for innovation. It is the creativity of people in the enterprise that transform the enterprise's resources into new resources and wealth, if they are operation in regenerative innovative system. It is important to understand that the creativity of the people matches the market requirements for creativity. And, if they don't to utilize creativity tools such as brainstorming or TRIZ. There are literally hundreds of different creativity enhancing tools available. It is key to match the tool to the need in the organization and the requirement of the market.

Personality - The personality of the people act as internal tools that shape the type of creativity likely to be interesting to the people and to result from internal human mental processes. The most researched personality tool is the Myers-Briggs Type Indicator (MBTI). It is important in problem solving, creativity and innovation to have a mix of personality types within your enterprise and to understand and utilize those personality types effectively.

Information - Information comes in four levels - noise, data, knowledge and wisdom. It is important to note that "noise" in the context of humans is not the same as "noise" that interferes with electronic transmission. Noise for humans is relative. What may appear to be noise for one person is someone's data. It is important the people in the enterprise have a rich storehouse of information in their brains that is easily accessible. This assures high quality creativity especially if there is a wide diversity of information available among the individuals. The use of appropriate tools and techniques to tap that information storehouse individually and collectively is imperative for an innovative enterprise. There are two basic types of knowledge - explicit and tacit. Explicit knowledge is formal and systematic. It can be expressed in words and numbers, and is easily communicated. Tacit knowledge is not easily communicated. It is highly personal and hard to formalize. Tacit knowledge includes insights, hunches and intuitions. It is deeply rooted in an individual's action and experiences, as well as in ideals, values and emotions. Tacit knowledge is of two types - technical and implicit. Technical tacit knowledge is that knowledge gained through the mastery of a technical art that includes "know-how". People with tacit technical knowledge can do the right thing without really knowing the reasons why they do what they do. Implicit tacit knowledge is broader. It involves cognition and consists of schemata, mental models, beliefs and perceptions so ingrained that they are taken for granted. In most cases people are not even aware of their implicit tacit knowledge. However, they shape the way we perceive the world. The tools and techniques used in creating an innovative enterprise must be able to access and utilize all types of knowledge. A Japanese company developed an automatic bread machine for the home by gaining the tacit knowledge of master bakers. Engineers worked for months along side master bakers and acquired their tacit knowledge. Then the engineers were able to convert that tacit knowledge into explicit knowledge, and from there into a design. The

tacit knowledge of people in the enterprise is a rich source of innovation if appropriately allowed to flourish and be accessed. For an innovative enterprise, all knowledge creation, even that obtained through hobbies or play can be valuable to the furtherance of innovation.

Skills - Skills can be taught or self acquired, like html or Java programming. But, skill development is only one piece of the four necessary ingredients for people in an innovative enterprise. When enterprises base the hiring or retention of employees solely on skills, they can be severely hampering the ability of the enterprise to innovate.

EXERCISE 2 - RESOURCES (15 MINUTES)

Hand out Exercise 2. This is an exercise to use explore the innovation resources of their enterprise and to think about potential impacts to innovations in their businesses. Explain the process and tell them that the objectives of this exercise are to:

- Become familiar with their innovation resources
- Give the participants time to think about their business and potential innovations
- Discuss their observations

Walk around the room and be available to answer questions. (15 minutes)

SLIDE 28: ORGANIZATIONAL CULTURE

The culture of an organization determines its character; it encourages the development of specific types of resources and the implementation of certain projects. Like social cultures, organizational cultures are known by their artifacts, the things they produce, and the behavior of individuals within the culture. The output or results of an organizational culture, its products or services, reflects the culture itself.

An organizational culture is composed of beliefs, values and behaviors. Results and consequences are built upon these three elements.

A culture has a small number of beliefs, things it holds self-evident, beyond questioning. Values are built upon the beliefs, and, therefore, there can be many more values than beliefs. Values determine the priorities for action, and they become the key factors in decisions. Decisions are made based on what the organization values, and the behavior of people within the culture is based upon their values. There are two different kinds of behavior sometimes shown in cultural models. In psychological parlance the term behavioral norms describes behaviors that clearly express, as they are directly linked to, the organization's values. Other behavior patterns follow the norms. The results of the organization is its products and services, which have consequences to the organization and its stakeholders, customers and competitors, and society in general.

The key element of the organizational culture we will focus upon is innovation values. There are about 125 organizational values. For innovation in today's environment, we will focus on 20 values.

These values are organized in two groups - vitality and quality. Vitality values are means values. They related to amount of change the organization prefers. Hence, vitality values determine the class of innovation (incremental, distinctive & breakthrough). Quality values are goal values. They are related to the organization's perspectives of quality, and can be directly linked back to the quality methodology embraced by the organization (Jones, Deming, Juran, Crosby etc.).

These two groups of values interact with each other to produce the energy in an organization.

"...I have become aware that values form dialectical relationships. Dialectical simply means two entities talking to each other. I may give a point of view on what I feel family means. My wife may have another view, and together we may come up with a third and different understanding that satisfies both of us. This is the basis of dialectical discussion or reasoning. It seems that values do the same thing. Two values interact to form a third.

In other words not only are values the priorities we live by, but they form dynamic clusters that can energize us, or perhaps destroy us!" - Brian Hall

For innovation values, there are no right or wrong values in general. There are best sets of values depending upon customer values, stakeholder values, existing enterprise values and the value requirements for competitive differentiation.

SLIDE 28: INNOVATION ENABLERS

Within the organization there are five innovation enablers that influence and encourage innovation. The task you are faced with to implement changes in an organization is to use measurements, incentives, communication, infrastructure, and education systems to influence and develop projects, resources, and culture. The easiest to influence is projects; the most difficult is culture

While it is impossible to generalize, typically project changes can be effected in large organizations in one to two years, resource changes can take from two to five years, and cultural changes take over five years. This means that your strategic perspective must have at least a five-year horizon to effectively utilize the organizational culture you have developed. If you must change a large organization in less than five years, it is probably wise to consider other ways of developing an organization such as starting a new company, acquisition, or joint venture.

The five areas, or elements, are interdependent and overlapping. It is the measurement system that holds it all together.

Incentives are programs, formal and informal, which recognize, reward, and encourage members of the organization to be innovative.

Communication systems are both informal and formal ways to facilitate the free flow of information within the organization. They also exist to facilitate the interchange of information with the world outside the organization.

Education programs are put in place to train and educate members of the organization. They exist to develop skills, ability; and knowledge in four areas, technical, personal, management, and integrative.

Integrative skills are generally overlooked by organizations. Quite often thought to be "soft," they are bypassed for the "harder" skills like learning how to design an integrated circuit. However, in today's environment, and especially when trying to encourage innovation, they are essential. They actually should be emphasized by the organization over technical skills, which individuals can be expected to develop on their own. Integrative skills fall into categories such as innovation, creativity, forecasting, professionalism, and leadership.

Infrastructure refers to the formal structures that facilitate the operation of the organization. This covers business structures that organize activities and provide a hierarchy of control and responsibility.

Measurements refer to the formal and informal programs that management uses to manage and monitor performance of the organization.

While all five enablers are important, measurements are key. People tend to pay attention to what is measured. A complete set of measures must include measurement of values, behaviors, results and consequences.

EXERCISE 3 - INNOVATION ENABLERS (15 MINUTES)

Hand out exercise 3 to the participants. Tell them that the purpose of this exercise is to get them to think about how they might improve the innovation enablers in their enterprise thereby increasing the amount of innovation. Ask them to use the worksheet to describe what they could do for each of the enablers to increase the amount of innovation in their organization. Discuss their observations. (15 minutes)

After the participants have completed the exercise, introduce the following topic before going to the next slide:

There have been many books and articles written, and workshops, seminars and speeches given on innovation. Most of them promote their way as the best way to generate more innovation. Some prescribe having more creativity. Almost all of them fit into the category we have labeled enablers. As a leader of innovation, your role is to pick the right enablers for your enterprise. For

you see, each of the enablers proposed by others carry their own innovation values and therefore promote a specific pattern of innovation as would be seen in an innovation map. What may work in one industry may not work in another. Or what works for one competitor in a market may not work for the other. If every competitor in market had the same culture and the same enablers, they would tend to produce the same pattern of innovation. There would be no competitive differentiation.

This is what Gary Hamel calls "strategy convergence." He writes, "If a strategy ain't different, it's dead." The tendency inside an industry is for all the competitors to drift into the same innovation pattern. As the need for innovation in the market changes, "strategy decay", another Hamel term, sets in, and the competitors become less relevant to their customers.

There are many examples of innovation enablers in history. A few of them are:

- Technical center
- Research center
- New products center
- Captive R&D
- External teams
- Internal ventures center
- External ventures center
- Licensing arrangements

A new one that is getting a lot of attention has been called "open innovation." The success of the "open source" methodology has spawned numerous attempts to create innovation in a similar manner. "Open source" is a name given the collaborative approach to create source code for computers, i.e. an operating system and other modules. Young people steeped in the "open source" philosophy are creating many intriguing and useful systems and tools. One of the places this has taken hold is in social change, i.e. deanspace.org, a virtual space created to enable the election campaign in 2004 of Howard Dean.

In this program we will be talking next about an "Innovation Commons", a term that encompasses all of the existing open innovation approaches. Since it appears to have tremendous potential and can be customized for your own enterprise and market, we will focus on what it is and what some principles might be.

However, be warned that this is not prescriptive. It is a powerful enabler to be used if it fits. The thing we don't want to have happen is to be like the man who has only one tool - a hammer. He then treats all problems as if they were a nail.

Background

Technical center:	Advances state of the art in company/ industry
	Focus on materials and methods/tools of fabrications
	Upgrading /replacement materials/ practices

	Lower-cost manufacturing
	Improve performance
Research center:	Basic & Applied research
New products center:	Enriches product line of existing business within a company
	Innovative features to existing products
	Utilize existing technologies
	Conform to existing product functions
	Exploit existing marketing channels
Captive R&D:	Addresses needs of a single business entity in a company
	Single or few missions
	Can include: Basic research, Applied research, Improved product design and New business ventures (skunk works)
External teams:	Service oriented
	Contract R&D
	Universities/consultants/companies
	Government-supported centers
Internal ventures center:	Strategic business unit (SBU)
	Independent business unit (IBU)
	Incubator
	Skunk works
External ventures center:	Product or business oriented
	Acquisition
	Establishment of minority position
	Joint venture
Licensing arrangements:	Fill gap
	Shorten time to market
	Maintain technical dynamism of an industry

SLIDE 30: INNOVATION COMMONS

The commons itself is as old as the earth. And the idea of the commons goes back hundreds of years.

The Romans distinguished between three types of property: *res privatae*, *res publicae* and *res communes*. The first consisted of things capable of being possessed by an individual or family. The second consisted of things built and set aside for public use by the state, such as public buildings and roads. The third consisted of natural things used by all, such as air, water and wild animals. This was codified in the Institutes of Justinian, the grand summation of Roman law, which said: “By the law of nature these things are common to mankind — the air, running water, the sea, and consequently the shore of the sea.”

In the United Kingdom during the Middle Ages, the commons were shared lands used by villagers for foraging, hunting, planting crops and harvesting wood. In 1215, the Magna Carta established forests and fisheries as *res communes*, resources available to all.

An innovation commons is a shared space, physical or virtual, that enables innovation through the mutual and interdependent creativity of its members.

Background

In England and Wales, a common is a piece of land over which other people -- often neighboring landowners -- could exercise one of a number of traditional rights, such as allowing their cattle to graze upon it. The older texts use the word common to denote any such right, but more modern usage is to refer to particular rights of common, and to reserve the word "common" for the land over which the rights are exercised.

The fact that land is common land does not mean it has no owner -- all land in England and Wales is owned by someone. Those who have a right to exercise a right of common are known as "commoners". Historically most rights of common were "appurtenant" to particular plots of land. So the commoner would be the person who, for the time being, was the owner of the land. Some rights of common were said to be "in gross" in that they were unconnected with ownership or tenure of land. This was more common in regions where commons were more extensive, such as in Northern England or in the Fens.

Example rights of common are:

- Common pasture (right to pasture cattle, horses, sheep or other animals on the common land)
- Common piscary (the right to fish)
- Common turbary (the right to take sods of turf)
- Estovers (the right to take sufficient wood for the commoner's house or agriculture)

Rights of common grazing might also be held over privately owned arable strips in some open field manors; this right was exercised either after the harvest or during a fallow year. Rights of grazing in the open fields was most valuable in manors with relatively little other grazing.

It is often thought that a common is somehow owned by everyone, or at least by "the community" in some sense. While that may have been true more than a thousand years ago, when waste would be used for grazing by the local community and over which there would not be, nor would there need to be, any particular limit or control of usage; since at least late Anglo-Saxon times, the right to exercise a right of common has been restricted to a commoner. Since the right of common would have some natural limitations itself, commons never suffered from the tragedy of the commons.

Thus the word is now used in the sense of any sets of resources that a community recognizes as being accessible to any member of that community. The nature of commons is different in different communities, but they often include cultural resources and natural resources.

While commons are generally seen as a system opposed to private property, they have been combined in the idea of "common property", which are resources "owned" equally by every member of the community, even though the community recognizes that only a limited number of members may use the resource at any given time.

The act of transferring resources from the commons to individual ownership is known as "inclosure."

Commons are a subset of public goods; specifically meaning a public good which is not infinite. Commons can therefore be land, rivers and, arguably, money. "The Commons" is most often a finite but replenishable resource, which requires responsible use in order to remain available. A subset of this is a commons, which requires not only responsible use but also active contribution from its users, such as a school or church funded by local donations.

In order to ensure responsibility of the users, there must be a system of management. Such models include the Hobbesian "Leviathan" model, where there is a central authority that monitors the behavior of the users and can sanction abusers. There are also many other models, some of which can require no maintenance -- for instance, if it is known that the collective consists mostly of contingent cooperators, then once responsible behavior has been established, it will most likely continue without management. Another model is reputation management.

Taken from "Commons", Wikipedia, <http://en.wikipedia.org/wiki/Commons>

SLIDE 31: INNOVATION COMMONS (CONT.)

An innovation commons is an open system, i.e. it is open to anyone within a prescribed domain. In that sense, an innovation commons is a bounded rational system. You as the innovation leader choose the boundaries around which the commons is created. Generally, the commons is open to anyone within the prescribed boundary. Participation is not based on rank, title, reputation or power. Vetting of the participants takes place within the commons by the participants in the commons based on the contributions and behavior of individuals.

Everyone contributes or they are excluded.

Everyone can use the results.

It's fluid and flexible. There is no hierarchy, only simple rules, principles and values. The basic belief is that if we share with each other, there will be more innovation and the innovation will be focused on real needs. It is an organic system.

It is an abundant resource system. Let's go back to the early commons used to graze sheep. The people in a village set aside some land as the common, a place where all can graze their sheep. If one villager abuses the common and overgrazes the land, the rest of the villagers suffer because there's not enough grass left for their sheep. This is called the "tragedy of the commons". This

tragedy can occur because it is a scarce resource system. There is only so much land and grass within the commons, and that resource can easily get used up.

This led Cory Doctorow to state that what we want are applications of the commons that are like "grass shitting sheep", maybe not a polite term but a vivid one.

An innovation commons is an abundant resource system. The creativity, energy and purpose of a community of people focused on common objectives are boundless. Every new idea creates a new resource and the resources in an innovation commons can grow geometrically.

SLIDE 32: INNOVATION COMMONS BOUNDARIES

One of valuable characteristics of an innovation commons is that it is scaleable. The simplest boundary is around the project. The more resources that are contained within the commons, the more difficult it is to establish.

It can expand out from the project to the whole company. It can include partners, vendors, suppliers and stakeholders - the koretsu as practiced by Japan.

The "Koretsu" idea was used successfully by the Japanese. That approach involved a "triumvirate" of government, banks, and private enterprise, wherein strategic long-range economic objectives were developed and carried out. It was that approach, for example, that enabled them to become a world leader in the production of automobiles. It was a limited innovation commons.

Customers can participate as well. A limited example is the "Beta" testing idea used by software developers.

And, in some cases, it can use competitors, as in the case of Sematech, a consortium formed to advance the state-of-the-art for semiconductor manufacturing tools in the U.S. In essence, at least part of the "open source" project is an innovation commons for competitors. But, instead of being institutional, it is happening at an individual level.

Wikipedia is a commons of people from all the categories who are interested in contributing to an Internet based encyclopedia - intended to be the world's best.

eBay is a type of commons for vendors, suppliers and customers. All open markets are a type of commons.

The deanspace.org effort was a commons of stakeholders that formed to foment social change.

A commons of competitors is frowned upon in the U.S. and legislation prohibits certain collaborative actions of competitors. Yet, we all depend upon another type of commons of competitors - OPEC.

Not all commons enable innovation. Some have been formed to limit or control innovation.

The principles of a successful commons do not exist yet. But there is a small international effort to define those principles (www.innovationcommons.net and <http://innovationcommons.blogspot.com>). But, in the meantime, let's look at the principles of the Open Source project that develops and maintains the operating system Linux.

SLIDE 33: OPEN SOURCE PRINCIPLES

- **Transparency** - Visibility and transparency are central to the most well known open source initiatives. While the standard approach to ensuring innovation in competitive industries has been to keep ideas secret as long as possible, and then copyrighted or patented thereafter, the open source model turns this on its head.
- **Vetting of participants only after they've gotten involved** - Traditional organizations erect sophisticated barriers to involvement; systems of recruitment, appraisal and promotion are designed to ensure that only people with adequate qualifications and experience get to work on important projects, or to exercise power. Open source projects work on a very different principle. They allow absolutely anyone to get involved; all that matters is whether or not they deliver high quality work.
- **Low cost and ease of engagement** - Genuine openness in any activity depends on cheap and easy ways of taking part. . The opportunities for time-rich people with access to the internet are enormous – all the information you could possibly require to teach yourself anything about how to make computers and software work is available for free, and the best documentation often surrounds the most open projects.
- **A legal structure and enforcement mechanism** - Open source does not mean a free-for-all. Instead it depends on a clearly defined legal framework which shapes the incentives for participation. If open source licenses were not legally enforceable, especially with regard to derivatives, then companies would more or less be able to appropriate the code that was produced and give back nothing in return. This would hugely dent the incentive for programmers to get involved. All open source projects release their data for free, but control its use through licenses that ensure that the improved work remains available for public use.
- **Leadership** - Most open source software has some centralized element of leadership or control. This concentration of power may be around an individual, such as Linus Torvalds, or an organization, such as the Apache Foundation. Whatever the particular structure there is usually a leadership that sets the general direction and ethos, assigns tasks and acts as an editor, approving changes to the source code. It is important that the leadership maintains the trust of contributors in order that they remain involved in the project.

SLIDE 34: OPEN SOURCE PRINCIPLES (CONT.)

- **Common standards** - Common standards have always been an essential part of successful projects. Successful open source projects like Linux and Wikipedia deal with

standards in two successful ways. They rely on open, free-to-use standards, and they create new, open, free-to-use standards for their users.

- **Peer review and feedback loops** - The principle by which the open source collaborative approach manages to produce such high quality work is most famously summed up in the words of coder Eric Raymond: "Given enough eyeballs, all bugs are shallow." By this Raymond means that even complex code, millions of lines in length and of huge complexity, can be debugged reasonably quickly when there are enough people looking at different bits of it.
- **Incrementalist** - small players can make useful contributions - Improvements to the source code of Linux or to a Wikipedia page can be modest, but still be valuable. In many other fields of development, the minimum threshold above which it is possible to make any valid contribution is very high – years of background work, gaining of a PhD or other advanced qualifications, and/or high capital costs. Both Linux and Wikipedia get a bit better every time someone makes a tiny change – and tiny changes are therefore sought and accepted, alongside major contributions.
- **Powerful non-monetary incentives** - The baseline assumption of most major projects, technological or otherwise, is that in order to get lots of work done, you must pay lots of money to the participants. Even this most basic assumption seems to be challenged by the new methods of working. For all the characteristics listed above contribute to an economic phenomenon – the ability of open source methods to replace traditional cash incentives with non-monetary ones. People working on Wikipedia and Linux do so almost entirely for non-monetary reasons. Some may be operating indirectly out of economic self-interest – open source programming allows a developer to signal their abilities to peers and potential employers. But programmers are more commonly driven by motives of social or personal fulfillment including the desire to be respected for their work.

End this section by talking about the enormous potential of the innovation commons concept. However, all the principles are not yet worked out. If the participants see an opportunity in their enterprise to use an innovation commons they should do so. In any case, they should monitor the development of the concept of an innovation commons and be ready to use it when the appropriate time arrives.

Background

Transparency

Visibility and transparency are central to the most well known open source initiatives. A project like Linux can grow only if potential contributors understand what it is that they're contributing to. While the standard approach to ensuring innovation in competitive industries has been to keep ideas secret as long as possible, and then copyrighted or patented thereafter, the open source model turns this on its head. From the very start projects like Wikipedia have been extremely open about how they work, who's in charge and what's expected of contributors.

Vetting of participants only after they've got involved

Traditional organizations erect sophisticated barriers to involvement; systems of recruitment, appraisal and promotion are designed to ensure that only people with adequate qualifications and experience get to work on important projects, or to exercise power. Open source projects work

on a very different principle. They allow absolutely anyone to get involved; all that matters is whether or not they deliver high quality work. This is clearly an attribute, which is not universally replicable – open source surgery is not something most of us would want to go through. Finally, in nearly all open source projects a majority of the participants have never met.

The lack of initial vetting does not, of course, mean that there is not substantial vetting of work once it is submitted. This can be done by a project leader, like Linus Torvalds, or by members of the general project community. Within Wikipedia nearly all the vetting of work is done by other members of the community, guided by a very simple set of editorial principles, rules which have themselves been informally agreed on by members of the Wikipedia community.

This vetting process leads to an interesting form of power assignment, where the amount of voluntary work done by members of a community is directly correlated to the power and respect they garner from the rest. This arrangement doesn't yet have a name (such as democracy or aristocracy), signifying its novelty as an organizing principle.

Low cost and ease of engagement

Genuine openness in any activity depends on cheap and easy ways of taking part. The important cost characteristic of both Wikipedia and Linux is that many people can get involved at no additional outlay beyond what they already spend on their computing. If you have already bought a computer and leased an Internet connection for other purposes, the cost of adding an article to Wikipedia or installing a distribution of Linux is, apart from your time, zero. In this respect open source projects are different from, for example, round-the-world yacht racing, another large, friendly, geographically dispersed and well-defined community of common interest, but not the cheapest to get involved with. It has become a truism that in the modern economy people who are cash rich tend to be time poor, and vice versa. The opportunities for time-rich people with access to the internet are enormous – all the information you could possibly require to teach yourself anything about how to make computers and software work is available for free, and the best documentation often surrounds the most open projects.

Once a budding, self-taught coder has acquired the basic skills required to program, nothing is so appealing as the thrill of getting their code incorporated in software that will be spread across the face of the world (and perhaps, over time, across others).

A legal structure and enforcement mechanism

Open source does not mean a free-for-all. Instead it depends on a clearly defined legal framework which shapes the incentives for participation. If open source licenses were not legally enforceable, especially with regard to derivatives, then companies would more or less be able to appropriate the code that was produced and give back nothing in return. This would hugely dent the incentive for programmers to get involved. All open source projects release their data for free, but control its use through licenses that ensure that the improved work remains available for public use.

Leadership

Most open source software has some centralized element of leadership or control. This concentration of power may be around an individual, such as Linus Torvalds, or an organization, such as the Apache Foundation. Whatever the particular structure there is usually a leadership that sets the general direction and ethos, assigns tasks and acts as an editor, approving changes to the source code. It is important that the leadership maintains the trust of contributors in order that they remain involved in the project. Although theoretically anyone can develop the source code as they see fit, if the project ‘forks’, which occurs when more than one version of a program gains wide usage, the original leadership usually has an in-built advantage over ‘fork’ projects because of their reputation and access to information. In the case of reputation, users (and programmers) will generally trust the originating project more than others will. In the case of information the central core will generally have information that others do not, and so be more effective (and hence more trusted).

When a new version of Linux is released programmers send their suggested improvements to Linus Torvalds and his team who then filter them. So, contrary to the assumptions of anarchic, emergent behavior, we find that most open source projects normally have charismatic leaders who help motivate a more dispersed group of developers.

Common standards

Common standards have always been an essential part of successful projects. You can’t preach a religion if your people can’t understand your language, and you can’t build a useful photocopier if you don’t know what size your next box of paper will be. Successful open source projects like Linux and Wikipedia deal with standards in two successful ways. They rely on open, free-to-use standards, and they create new, open, free-to-use standards for their users.

The standards they rely on consist of things like the Internet Protocol (IP) which holds the Internet together or UTF-8, the standard for international language alphabets. If they had chosen not to use any of these standards, the number of potential users would have been in single figures, rather than hundreds of millions, and the cost of building the services would have rocketed immediately out of the realms of feasibility.

The standards they have created benefit the mother projects in a number of different ways. Linux’s freeness and ubiquity has created strong incentives to develop applications that work on it. These applications have created more reasons to use Linux, and so forth in a virtuous circle. But it is not just the fact that these standards exist that matters – it is the fact that they are free to use, and open for scrutiny.

There are many standards available for which royalty fees must be paid. Even where these are modest, they can simply kill any chance that the standard might spread organically – instead it must be expensively sold through consortiums and manufacturers, like the standards underpinning VHS or DVD formats. Furthermore, the fact that standards like HTML are open for scrutiny and bug correction by anyone with the time has helped to explain why they are better quality and more widely adopted. This characteristic is examined more closely below.

Peer review and feedback loops

The principle by which the open source collaborative approach manages to produce such high quality work is most famously summed up in the words of coder Eric Raymond: ‘Given enough eyeballs, all bugs are shallow. By this Raymond means that even complex code, millions of lines in length and of huge complexity, can be debugged reasonably quickly when there are enough people looking at different bits of it. The reason that Wikipedia manages to retain such high quality on average is that there are so many people reading it. Most obvious factual mistakes or breaches of editorial guidelines are corrected by users passing by. The reason it works is trivial – there are simply enough people out there who are willing and able to keep the site well ordered, and to do so for free. This leads straight on to the question – why?

A shared conception of goals

Like any big projects, both Linux and Wikipedia must deal with internal dissent about particular choices and directions. But what has made them successful is that there is enough of a common conception of the good to make each project thrive. Linux coders may not agree about the merits of the profit motive, or the effectiveness of the GPL, or even why they are contributing. But they do all agree that fixing a bug or adding a feature is worth it for at least themselves, and that the vetting they can get from peer review is a valuable resource if they want their creation to be as good as possible.

Incrementalist – small players can still make useful contributions

Improvements to the source code of Linux or to a Wikipedia page can be modest, but still be valuable. In many other fields of development, the minimum threshold above which it is possible to make any valid contribution is very high – years of background work, gaining of a PhD or other advanced qualifications, and/or high capital costs. Both Linux and Wikipedia get a bit better every time someone makes a tiny change – and tiny changes are therefore sought and accepted, alongside major contributions.

Powerful non-monetary incentives

The baseline assumption of most major projects, technological or otherwise, is that in order to get lots of work done, you must pay lots of money to the participants – the Channel Tunnel didn’t cost £10 billion for nothing. Even this most basic assumption seems to be challenged by the new methods of working. For all the characteristics listed above contribute to an economic phenomenon – the ability of open source methods to replace traditional cash incentives with non-monetary ones. People working on Wikipedia and Linux do so almost entirely for non-monetary reasons. Some may be operating indirectly out of economic self-interest – open source programming allows a developer to signal their abilities to peers and potential employers.

But programmers are more commonly driven by motives of social or personal fulfillment including the desire to be respected for their work. Sometimes open source coding can be done for immediate self-interest – I really want a program that does X, and the easiest way is to modify this pre-existing open source application. If the license says that the program is open source, though, I have to publish my code in order to remain on the right side of the legal terms and conditions. So my pure self-interest can result in me building better code for others to use.

To summarize, then, open source methods are built around these ten characteristics. The principles are relatively simple, mutually reinforcing, and add up to a powerful new way of organizing activities and mobilizing large numbers of minds towards common goals.

However, there is no inherent reason why all of these principles need to coexist. There are many possible evolutions of open source methods that do not use one or more of these principles; and some of these directions of evolution are likely to be influenced by the weaknesses of pure open source methods.

Mulgan, Steinberg and Salem, Wide Open, DEMOS

PART 5: SUMMARY (SLIDES 35 - 38) - 15 MINUTES

In the last part of this program, we will be talking about how to build an innovative enterprise, principles of an innovative enterprise and reviewing what an innovative enterprise is.

Innovation is the way to transform the resources of an enterprise through the creativity of people into new resources and wealth.

Aristotle taught us over 2,000 years ago that there are four causes to every reality. To create the reality of the innovative regenerative enterprise also requires four causes:

- **Material Cause** - The material cause is what the new reality is to be made of, like the building materials for a new house. For an innovative enterprise, it's the creativity of the people.
- **Formal Cause** - The formal cause shapes the new reality, like the drawings for a new house. In this case it is the innovation strategy.
- **Efficient cause** - The efficient cause is the way of transforming the materials through the strategy into a physical reality. For an innovative enterprise, this requires organizational development, and most importantly leadership.
- **Final cause** - the final cause reflects the purpose of the new reality. For a house it's the transformation into a home. In this case, it's the innovation that allows the enterprise to regenerate by the creation of new resources and wealth.

The skeptic says, "I'll believe it when I see it." The innovant (an innovator who can lead innovation) says, "If I believe it, I will see it." The regenerating innovative enterprise can become a reality if you and the people in your enterprise believe that it will, and you have the four essential ingredients - creativity of the people, an effective strategy, an efficient organizational development plan and good leadership.

That's all well and good you may say. "It sounds pretty ethereal." Just remember that a journey of a thousand miles begins with the first step. In the next three slides we'll be talking about some steps to take on your journey to an innovative enterprise.

SLIDE 35: HOW TO BUILD AN INNOVATIVE ENTERPRISE

- Understand your current innovation resources - people, capital, tools/equipment, facilities/land, knowledge, strategic partners, and natural resources. Identify and characterize your current innovation enablers - education, communication, infrastructure, incentives and measurement system.
- Assess how long it would take for you the change the slowest part of your innovation system, projects, resources, culture, enablers
- Forecast the opportunities and threats for innovation at least as far into the future as the it would take you to change the slowest changing part of your innovation system
- Interpret the results of your forecast in terms of innovation resources and enablers.
- Create the strategy
- Develop a plan utilizing the projects, resources and culture utilizing the innovation enablers with a focus on the measurement system
- Measure progress before and during your implementation

SLIDE 36: PRINCIPLES OF AN INNOVATIVE ENTERPRISE

As a leader there are four principles that you must master if you want to build an innovative enterprise:

- **Ennoble** - The ennobling process gives people the reason for change and thus justifies the extraordinary risk and hard work it takes to go through change. To ennoble someone is to give them a higher purpose and give meaning to their work. And as work is the main activity of most people's lives, if their work is ennobled, their life can become ennobled. In strategy development, ennoblement is provided by the vision.
- **Enable** - Enabling means providing the tools for change, giving the people the weapons they need to fight the battles of change. Many of these extend beyond the scope of strategy development, but the two elements of strategy that do apply here are mission and goals. Missions and goals can be hierarchical, subdivided down so that every individual sees how their piece fits into the organization's strategy.
- **Empower** - The strategic plan empowers individuals to act. It tells them how to go about the process of change.
- **Encourage** - Encouragement is provided by feedback of the positive results. This is one of the reasons why a good measurement system must be established. Measurements can also be hierarchical, so that each individual can be measured on their contributions. Measurements can also be time phased. Some measurements can be developed that will show results earlier than those that reflect the significant organizational change will.

Background

A strategy is the road map for change. Because of the interaction of the driving forces for change with customer needs, technological capabilities, and competitive responses, the market the organization wishes to serve is constantly changing. In order for the organization to remain

competitive in a global market, it must change to align its projects, resources, and culture to the redefined opportunity. The strategy is the link between the changing world outside the organization and the world inside the organization that needs to change.

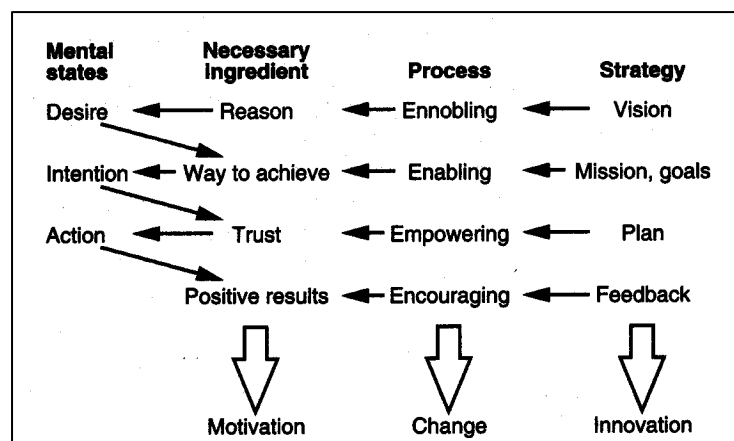
The internal implications of the organization's strategy are enormous and must be addressed within the strategy. A strategy focused only on the outside world will not be effective or efficient. The organization's strategy calls for the organization, and thus the people in it, to change, and gives them the path. If the organization is motivated to change, change will result, and innovation will follow. If that innovation can be focused continually on the market, the organization will be successful.

For individuals to change, they must first have the desire to change. If an individual has the desire to change, he or she may develop the intention to change. If intention develops, the person may act on that intention.

The process of facilitating this series of events is motivation. Motivation is not a thing; it is a process. To motivate someone to change, a compelling reason for change must be developed and communicated to that person in a language the person understands. If this creates the desire to change, the intention to change may develop if the way to achieve change is developed and communicated. If the person believes that the way is credible, plausible, and likely to result in success, the person will develop the intention to change. If trust has been established between the person and the organization of which he or she is a member, the person will act on that intention and begin to change. At this stage, change is still delicate. If there are no positive results that are obvious to the individual, he or she may revert to old patterns of behavior, or even worse, hunker down and wait for the storm to blow over. This behavior is devastating to the organization. However, if positive results are obtained in the early stages, and the individual sees the long-term perspective, significant change can be effected.

The processes of change in an organization therefore become the "four E's". If the organization ennobles, enables, empowers, and encourages, positive change will result. The result of the four E's is a fifth E, enjoyment. The people in the organization will enjoy what they are doing even if the change path is difficult.

Much has been written and said about empowerment in today's business world. Its virtues have become almost common wisdom, and it is offered as a panacea for almost all problems. But empowerment without ennoblement and enablement is a recipe for



disaster. Just telling people that they are empowered to change without giving them the tools of change and the channel of change is sure to fail.

The ennobling process gives people the reason for change and thus justifies the extraordinary risk and hard work it takes to go through change. To ennoble someone is to give them a higher purpose and give meaning to their work. And as work is the main activity of most people's lives, if their work is ennobled, their life can become ennobled. In strategy development, ennoblement is provided by the vision.

Enabling means providing the tools for change, giving the people the weapons they need to fight the battles of change. Many of these extend beyond the scope of strategy development, but the two elements of strategy that do apply here are mission and goals. Missions and goals can be hierarchical, subdivided down so that every individual sees how their piece fits into the organization's strategy.

The strategic plan empowers individuals to act. It tells them how to go about the process of change.

Encouragement is provided by feedback of the positive results. This is one of the reasons why a good measurement system must be established. Measurements can also be hierarchical, so that each individual can be measured on their contributions. Measurements can also be time phased. Some measurements can be developed that will show results earlier than those that reflect the significant organizational change will.

SLIDE 37: REGENERATIVE INNOVATIVE ENTERPRISE

An innovative enterprise that can regenerate will probably not last forever. Nothing of human systems is permanent. However, it can be a legacy that can last longer than your tenure or even your life. It can create wealth for uncounted thousands of people and advance society in a positive way.

Innovation is the way of transforming the resources of an enterprise through the creativity of people into new resources and wealth!

SLIDE 38: FOR MORE INFORMATION

This is a listing of free resources on innovation available via the Internet.

END OF SLIDES

CONCLUDING THE PRESENTATION

EVALUATION—5 minutes:

Have the participants complete the workshop evaluation form and collect them as the participants depart.

HAND OUT ARTICLE

Distribute the article, “Building an Innovative Enterprise” by Paul Schumann as a take-away from the workshop. This article summarizes the key points made during the presentation.

Building an Innovative Enterprise: Exercise 1 - Innovation Mapping

Work individually if you are the only one present from your company. Work as a team if two or more are present from your company.

Using the innovation map as a guide, brainstorm innovations that you could do for your company. Identify at least one innovation in each of the nine boxes.

Use the perspective of your customer. What products, processes and procedure would be of value to them?

Use the innovation map on the next page.

Innovation Map

	Incremental (Improvements to existing products, processes and procedures.)	Distinctive (Like other innovations the customer has seen, but distinctively different.)	Breakthrough (Completely new and different from the perspective of your customer.)
Product (How things work with things.)			
Process (How people work with things.)			
Procedure (How people work with people.)			

Building an Innovative Enterprise: Exercise 2 - Innovation Resources

Work individually if you are the only one present from your company. Work as a team if two or more are present from your company.

For each of the applicable innovation resources, identify at least one thing you could do to utilize the innovation resource better or change the innovation resource to improve innovation in your company

Use the worksheet on the next page.

Innovation Resources

Resource	Use or Change
People (creativity, information, skills, personality)	
Capital	
Tools/ Equipment	
Facilities/Land	
Knowledge	
Strategic Partners	
Natural resources	

Building an Innovative Enterprise: Exercise 3

- Innovation Enablers

Work individually if you are the only one present from your company. Work as a team if two or more are present from your company.

How can you increase innovation in your organization?

For each of the enablers, list 1 to 3 things that you could do in your organization that would increase the amount of innovation, and help in the changing of the values.

Enabler	What Changes Can I Make to Improve Innovation?
Education	
Communication	
Incentives	
Infrastructure	
Measurements	

Building an Innovative Enterprise: Exercise 4

- Innovation Enablers

Work individually if you are the only one present from your company. Work as a team if two or more are present from your company.

How can you increase innovation in your organization?

For each of the enablers, list 1 to 3 things that you could do in your organization that would increase the amount of innovation, and help in the changing of the values.

Enabler	What Changes Can I Make to Improve Innovation?
Education	
Communication	
Incentives	
Infrastructure	
Measurements	